

REMARKS

Claims 1-19 are all the claims pending in the present application. Claims 1-19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over newly-cited United States Patent (USP) 5,501,096 to Stettner et al. (Stettner) in view of USP 4,760,385 to Jansson et al. (Jansson). Applicants respectfully traverse the prior art rejections, and request reconsideration and allowance of all the pending claims in light of the following remarks.

As indicated previously on the record, aspects of the present invention are generally related to calibrating an imaging system to correct possible panel misalignment errors. In accordance with some embodiments, a reference slide or data point may be used to obtain a series of measurements which may be compared to expected results. Alignment calibration data collected or otherwise determined in accordance with the present application may be used to determine positioning and orthogonality errors in the scanning system. Specifically with respect to employing calibration data to correct alignment errors, claim 1 recites an element directed to “determining positioning and orthogonality errors from the calibration data,” claim 8 recites an element directed to “applying the adjustment parameters to position a . . . portion of the plurality of specimens within a scan area,” and claim 14 recites using “an adjustment algorithm to modify movement of the staging area to compensate for the calibration data.” As set forth in more detail below, at least the foregoing elements are neither disclosed nor suggested by the references cited.

The Rejection Under 35 U.S.C. § 103(a)

As set forth briefly above, claims 1-19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stettner in view of Jansson. MPEP § 706.02(j) sets forth the following criteria for establishing a *prima facie* case of obviousness under 35 U.S.C. § 103(a): a motivation or suggestion to modify a single reference or to combine multiple references; a reasonable expectation that the modification or combination of references will produce an operative or successful result; and the references, when modified or combined, must teach or suggest every limitation recited in the claims.

At least because the alleged motivation to combine Jansson with Stettner is lacking, and because the combination fails to teach every element recited in the claims in any event, Applicants submit that the rejection under 35 U.S.C. § 103(a) is improper.

As set forth previously on the record, the Jansson reference is deficient at least to the extent that it merely describes a basic mechanism of acquiring a large virtual field-of-view by automatically acquiring and assembling a montage of individual “vignettes.” While Jansson

arguably describes a “stitching” or “mosaic” process, in accordance with which multiple images may be used to assemble a larger field of view, the Jansson reference fails to describe or even to suggest at least the following: calibration; pixel size adjustments; rotation measurements; and modeling of the image geometry. The extensive record is clear that coordinate calibration such as described and claimed in the present application is neither taught nor suggested in the Jansson reference.

While various deficiencies of the Jansson reference have previously been addressed on the record, one particular shortcoming is especially relevant at this juncture, because the Examiner has cited the Jansson patent specifically as teaching a feature that is admittedly lacking in the Stettner patent: “determining orthogonality error from the calibration data.” As set forth in more detail below, the Jansson reference simply does not teach this feature. The system set forth in Jansson employs stage motion to facilitate alignment of mosaic image tiles; this procedure relies upon a “calibrated image pixel size” for a particular objective lens (Jansson at column 5, lines 12-22). These pixel size data are obtained from a look up table, relate only to the size of an individual pixel, and are entirely unrelated to the calibration data set forth in the present application which are directed to measuring and modeling stage motion errors (*see, e.g.*, pages 11 through 15 of the present application). Similarly, the text of Jansson cited above discusses calculation of total mosaic image size based upon calibrated pixel size. Neither the text cited by the Examiner (Jansson at col. 5, ll. 17-22 and col. 6, ll. 1-10) nor any other portion of Jansson suggests the positioning and orthogonality error determination recited in the pending claims.

Specifically, the Examiner’s analysis at page 3 of the outstanding Office Action is incorrect. Jansson does not teach “determining orthogonality error from the calibration data” as the Examiner has asserted. In accordance with the fair teachings of Jansson, the calibrated image pixel size (obtained from a look up table) determines the distance the stage must move for adjacent image segments--specifically, stage motion in Jansson is predetermined, and ***orthogonality errors cannot be corrected using data relating only to pixel size***. The Jansson system uses these pixel size data to determine or otherwise to compute required distances in absolute terms, but neither teaches nor even contemplates making adjustments for stage or imaging apparatus movement errors (Jansson, column 3, lines 22-26). Consequently, the motion of the stage assembly in Jansson is neither related to, nor affected by, application of “calibration data” as the Examiner has stated.

The Stettner patent describes a technique for measuring and correcting the differences of measurement forces obtained along different measurement directions. In that regard, the problem that Stettner solves is a form of mechanical hysteresis. The surface measurement instrument disclosed in Stettner behaves differently depending upon which direction the detector is moved. The purpose of the technique described in Stettner is to correct for such directional differences, rather than to calibrate systematic instrument assembly issues.

In particular, the Stettner patent provides no description of any correction method used within the disclosed computer controlled instrument. Furthermore, the instrument's coordinate correction method appears to be based on a simple look-up table of numbers, rather than upon calibration data. The Examiner's assertion that "correction values" are equivalent to a "solution model" (*see, e.g.*, the sentence bridging pages 2 and 3 of the outstanding Office Action: "creating a solution model, *i.e.*, correction values") is inappropriate and inaccurate. While the Stettner patent addresses calibration, it fails to teach any system or method of "determining . . . orthogonality errors from the calibration data" as recited in independent claim 1, "creating adjustment parameters based on the calibration data" as recited in independent claim 8, and creating "an adjustment algorithm" to compensate for orthogonally calibration data as recited in independent claim 14. As noted above, the Jansson patent fails to supply these deficiencies.

Additionally, the Stettner patent teaches nothing about imaging. The scope and contemplation of the Stettner patent are directed to a method of correcting for feeler-gauge errors related to directional hysteresis associated with a mechanical measuring device. Specifically, the Stettner patent teaches a "calibration method for determining and compensating differences of measuring forces in different coordinate directions in a multi-coordinate scanning system." An ordinarily skilled artisan would not have been motivated to combine the fair teachings of Stettner with Jansson's imaging system.

At least for the foregoing reasons, it would not have been obvious to combine the teachings of Jansson with the teachings of Stettner in the manner suggested by the Examiner. The only relevant teaching in Stettner is related to calibration, *per se* (and not to correcting orthogonality errors based upon such calibration, as the Examiner has acknowledged), while Jansson does not consider error calculations, or compensation therefor, at all. Additionally, the references, even when considered in combination, fail to teach or to suggest every element recited in the pending claims. Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness, and the rejection under 35 U.S.C. § 103(a) is improper.

The Stettner and Jansson patents, whether considered individually or in combination, fail to teach every element recited in independent claims 1, 8, and 14, and accordingly, the rejection of claims 1-19 under 35 U.S.C. § 103(a) is therefore improper. In addition to the reasons presented above with specific reference to claims 1, 8, and 14, dependent claims 2-7, 9-13, and 15-19 recite additional features and elements neither taught nor suggest by the cited art; these dependent claims are allowable for their respective recitations as well. Applicants submit that claims 1-19 are allowable at least for the reasons set forth above, and request that the rejection under 35 U.S.C. §103 (a) be withdrawn.

CONCLUSION

Based at least upon the foregoing, Applicants respectfully submit that claims 1-19 are allowable, and that the present application is currently in condition for allowance. The Examiner is encouraged to contact the undersigned at 858-509-4007 if it is believed that a discussion may advance the prosecution of this case.

Please charge any fees associated with the submission of this paper to Deposit Account Number 502212. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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